

Pelham Marsh Road Area Information

June 19, 2001

Resident
Marsh Road Area
Pelham, NH 03076

Dear Marsh Road Area Resident:

The purpose of this letter is to inform you of the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this homeowner. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary Butyl Ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 46 water supply wells in the area.

In May 2000, DES reduced the drinking water quality standard for MtBE from 70 parts per billion to 13 parts per billion, making it more stringent. It should be noted that this standard is the lowest standard in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our new standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 15 residential drinking water wells have detected concentrations of MtBE exceeding DES's drinking water standards.

Sampling Results Summary

Since August 2000, DES has completed water quality sampling on 46 residential drinking water wells and one commercial water supply well (not used for drinking) in the area. Results are summarized below:

- MtBE has been detected in 40 residential drinking water wells and the commercial water supply well. Concentrations of MtBE in 15 of the residential water supply wells have been above the drinking water standard. MtBE has also been detected in the commercial well at a concentration exceeding the drinking water standard.

- To date DES has installed treatment systems on 13 of the residential wells where MtBE has been detected above the drinking water standard and is in the process of evaluating treatment system installations for two other residential wells.
- Twenty-two of the residential drinking water wells and the commercial well have been sampled on more than one occasion. Although concentrations in some of these wells have decreased since the first time they were sampled, DES does not have enough information to determine whether concentrations in the Marsh Road area are decreasing overall. It is common for MtBE concentrations to fluctuate with seasonal changes in the water table and with changes in water use.
- Other gasoline-related volatile organic compounds have been detected in nine of the residential drinking water supply wells and in the commercial well. These compounds include benzene, toluene, and 1,2-dichloroethane, which were all detected below the drinking water standards. Tertiary-amyl methyl ether (TAME) and diisopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for TAME and DIPE.
- Chlorination byproducts have been detected in four drinking water wells. Possible sources of chlorine include chlorine disinfection of wells, pools or hot tubs, laundering and other septic system discharges.

The enclosed map shows the location of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE and Migration

As part of the work on this project, DES has looked into the potential sources of the gasoline and MtBE detected in the study area. DES believes that the sampling completed to date shows several potential source areas:

- 1) The area around 180 Marsh Road, an auto dismantling operation. Information in DES files shows that an unknown amount of a petroleum product entered the ground through a floor drain and dry well system previously located on this property. The property owner removed the floor drain and dry well system in 1999, at the request of DES. Concentrations of gasoline-related contaminants were detected in soil samples collected when the system was removed. These concentrations were below the New Hampshire soil standards.

After DES became aware of the residential drinking water well contaminated with MtBE on Marsh Road, the owner of the auto dismantler was requested to perform an Initial Site Characterization. The scope of work for an Initial Site Characterization includes background research, installation of groundwater monitoring wells, soil and groundwater sampling, and a preliminary assessment of the area's hydrogeology.

DES received the results of the auto dismantler's Initial Site Characterization on May 31, 2001. During this investigation, three groundwater monitoring wells were installed in the area of the former floor drain and dry well system. These monitoring wells were installed in the overburden i.e., the soil overlying bedrock. Benzene, naphthalene, alkylbenzenes, TAME, and MtBE were detected above the drinking water standards in overburden groundwater beneath this portion of the auto dismantler's property. Concentrations of MtBE ranged from 35 parts per billion to 811 parts per billion.

Based on the Initial Site Characterization, it appears that overburden groundwater in this portion of the auto dismantler's property flows to the north. It is important to note that groundwater may flow north in one small area, but the overall direction of groundwater flow for the larger area in which that small area exists may be toward a different direction. Preliminary assessment of overall groundwater flow direction in the Marsh Road Area suggests that there may be a groundwater divide in the area of the auto dismantler's property, with groundwater on the eastern side flowing to the east, toward Beaver Brook, and groundwater to the west flowing westerly, toward Gumpas Pond Brook.

- 2) The area around 199 Marsh Road, a former gasoline station. The gasoline underground storage tanks were removed from this property in 1987, and four groundwater monitoring wells were installed. Gasoline-related compounds including benzene, toluene, ethylbenzene, and xylenes were detected in groundwater samples collected in 1987. The analytical method used in 1987 did not include analysis for MtBE, so it is not possible to determine whether MtBE was present in the groundwater beneath this property at the time of the tank removal.

Groundwater samples collected from the monitoring wells on this property in 1998 showed benzene and naphthalene above the drinking water standards. MtBE was also detected at a concentration below the drinking water standard. Gasoline-related contaminants have not been detected in the drinking water well on this property. Groundwater elevations measured at 199 Marsh Road indicate that groundwater in this area is flowing southwest toward Gumpas Pond Brook. DES has requested additional groundwater samples at this property, and a change in ownership delayed completion of the requested sampling. DES understands that the new owners intend to complete the sampling, and the results are due in August 2001.

- 3) Small spills and releases of gasoline by one or more homeowners, or home businesses, throughout the study area. These types of releases are evidenced by the trace

concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to either of the above source areas.

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. On Wilshire Lane, bedrock outcrops can be seen at the surface. Thin soil and shallow bedrock means that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, into the bedrock. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk to contamination. The predominant directions of groundwater flow and MtBE migration appear to be toward the northeast and southwest. However, higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions.

Future Work by DES

To ensure protection of the public health, DES will continue with the following measures:

- 1) Require owners to continue investigations and remediation at 180 Marsh Road and 199 Marsh Road.
- 2) Maintain and service the existing residential drinking water treatment systems.
- 3) Complete routine sampling of residential drinking water wells in the study area. Sampling of drinking water wells in the study area will be completed at three-month intervals, or until the risk of contamination from the gasoline is eliminated.
- 4) Install additional drinking water treatment systems, as appropriate.
- 5) Map locations of area drinking water wells using Global Positioning System (GPS) equipment in order to obtain a better understanding of contaminant migration.
- 6) Provide periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline" enclosed with this letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled

while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please feel free to pass this information on to friends and visit the DES web site @ www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

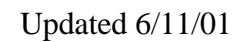
Sarah Yuhas Kirn
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

Enclosures: Marsh Road Area Map
Fact Sheet CO-10, Consumer Tips for the Safe Management of Gasoline
Fact Sheet WD-WSEB-3-19, MtBE in Drinking Water

H:\Skirn\MRA\newsltr_0601.doc

cc: Pelham Health Officer
Tom Bobowski, Nobis

DES#199907056



October 10, 2001

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *October 2001 Project Status Update*
(DES #199907056-SPILL/RLS-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to inform you of the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this homeowner. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 60 water supply wells in the area.

In May 2000, DES reduced the drinking water quality standard for MtBE from 70 parts per billion to 13 parts per billion, making it more stringent. It should be noted that this standard is the lowest standard in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our new standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 16 residential drinking water wells have detected concentrations of MtBE exceeding DES's drinking water standards.

Sampling Results Summary

Since August 2000, DES has completed water quality sampling on 59 residential drinking water wells and one commercial water supply well (not used for drinking) in the area. Results are summarized below:

- MtBE has been detected in 48 residential drinking water wells and the commercial water supply well. Concentrations of MtBE in 16 of the residential water supply wells have been above the drinking water standard. MtBE has also been detected in the commercial well at a concentration exceeding the drinking water standard.
- To date DES has installed treatment systems on 13 of the residential wells where MtBE has been detected above the drinking water standard and is in the process of evaluating treatment system installations for two other residential wells.
- Forty-six of the residential drinking water wells and the commercial well have been sampled on more than one occasion. DES does not have enough information to determine whether concentrations in the Marsh Road area are decreasing overall. The concentrations appear to be fluctuating with seasonal changes in the water table and with changes in water use. Generally, concentrations were lower in spring of 2001 than during both 2000 and 2001 summer sampling events. Concentrations detected this summer were similar to those detected in summer 2000.
- Other gasoline-related volatile organic compounds have been detected in 18 of the residential drinking water supply wells and in the commercial well. These compounds include benzene, toluene, xylenes, and 1,2-dichloroethane, which were all detected below the drinking water standards. Tertiary-amyl methyl ether (TAME) tertiary butyl alcohol (TBA), and di-isopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for TAME, TBA, and DIPE.
- Chlorination byproducts have been detected in nine drinking water wells. Possible sources of chlorine include chlorine disinfection of wells, pools or hot tubs, laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE and Migration

As part of the work on this project, DES has looked into the potential sources of the gasoline and MtBE detected in the study area. DES believes that the sampling completed to date shows several potential source areas:

- 1) The area around 180 Marsh Road, an auto dismantling operation. Information in DES files shows that an unknown amount of a petroleum product entered the ground through a floor drain and dry well system previously located on this property. The property owner removed the floor drain and dry well system in 1999. Gasoline-related contaminants were detected in soil samples collected when the system was removed. These concentrations were below the New Hampshire soil standards.

After DES became aware of the residential drinking water wells contaminated with MtBE on Marsh Road, DES required that the auto dismantler perform an Initial Site Characterization. DES received the results of the auto dismantler's Initial Site Characterization on May 31, 2001. During this investigation, three groundwater monitoring wells were installed in the area of the former floor drain and dry well system. These monitoring wells were constructed in the overburden i.e., the soil overlying bedrock. Benzene, naphthalene, alkylbenzenes, TAME, and MtBE were detected above the drinking water standards in overburden groundwater beneath this portion of the auto dismantler's property. Concentrations of MtBE ranged from 35 parts per billion to 811 parts per billion.

Based on the confirmed release of petroleum identified in the Initial Site Characterization, DES requested that the owner of the auto dismantling facility conduct a Site Investigation (SI). The SI is intended to define the extent and magnitude of contamination at the site and off-site surrounding areas. The SI will include installation of additional monitoring wells, soil and groundwater sampling, and analysis of groundwater flow. The owner stated that he was unable to comply with DES's SI request deadline, so DES has hired a consultant to perform the investigation. The field work will be conducted this fall, and DES will use the information collected during the SI to select an appropriate method for cleaning up the contamination.

- 2) The area around 199 Marsh Road, a former gasoline station. The gasoline underground storage tanks were removed from this property in 1987, and four groundwater monitoring wells were installed. Gasoline-related compounds including benzene, toluene, ethylbenzene, and xylenes were detected in groundwater samples collected in 1987. The analytical method used in 1987 did not include analysis for MtBE, so it is not possible to determine whether MtBE was present in the groundwater beneath this property at the time of the tank removal.

Samples collected from the monitoring wells on this property in August 2001 showed a small area of groundwater contamination limited to the immediate area of the former tanks. In this area, benzene, naphthalene, and alkylbenzenes were detected above the drinking water standards. These compounds are typical of older gasoline releases that have been biodegrading in the environment for a number of years. MtBE was also detected in one monitoring well at 17 ppb and in the site water supply well at 2 ppb. Groundwater elevations measured at 199 Marsh Road indicate that groundwater in this area is flowing southwest toward Gumpas Pond Brook.

Because groundwater beneath this property appears to be flowing away from Marsh Road and because contaminated groundwater associated with the former tanks is limited to the immediate area of the former tanks, DES has determined that the tanks at this property did not contribute to the MtBE contamination observed in drinking water wells in the Marsh Road Area.

- 3) Small spills and releases of gasoline by one or more homeowners, or home businesses, throughout the study area. These types of releases are evidenced by the trace concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to either of the above source areas.

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Thin soil and shallow bedrock means that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination. The predominant directions of groundwater flow and MtBE migration appear to be toward the northeast and southwest. However, higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions.

Future Work by DES

To ensure protection of the public health, DES will continue with the following measures:

- 1) Continue investigations and remediation at 180 Marsh Road and 199 Marsh Road.
- 2) Maintain and service the existing residential drinking water treatment systems.
- 3) Complete routine sampling of residential drinking water wells in the study area. Sampling of drinking water wells in the study area will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Install additional drinking water treatment systems, as appropriate.
- 5) Map locations of area drinking water wells using the Global Positioning System (GPS) data collected in July 2001, in order to obtain a better understanding of contaminant migration.
- 6) Provide periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline," provided in DES's June 19, 2001 letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about

150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please pass this information on to friends and visit the DES web site @ www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kirn
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

SYK:
H:\Skirn\MRA\newsltr_0102.doc

Enclosures: Marsh Road Area Map

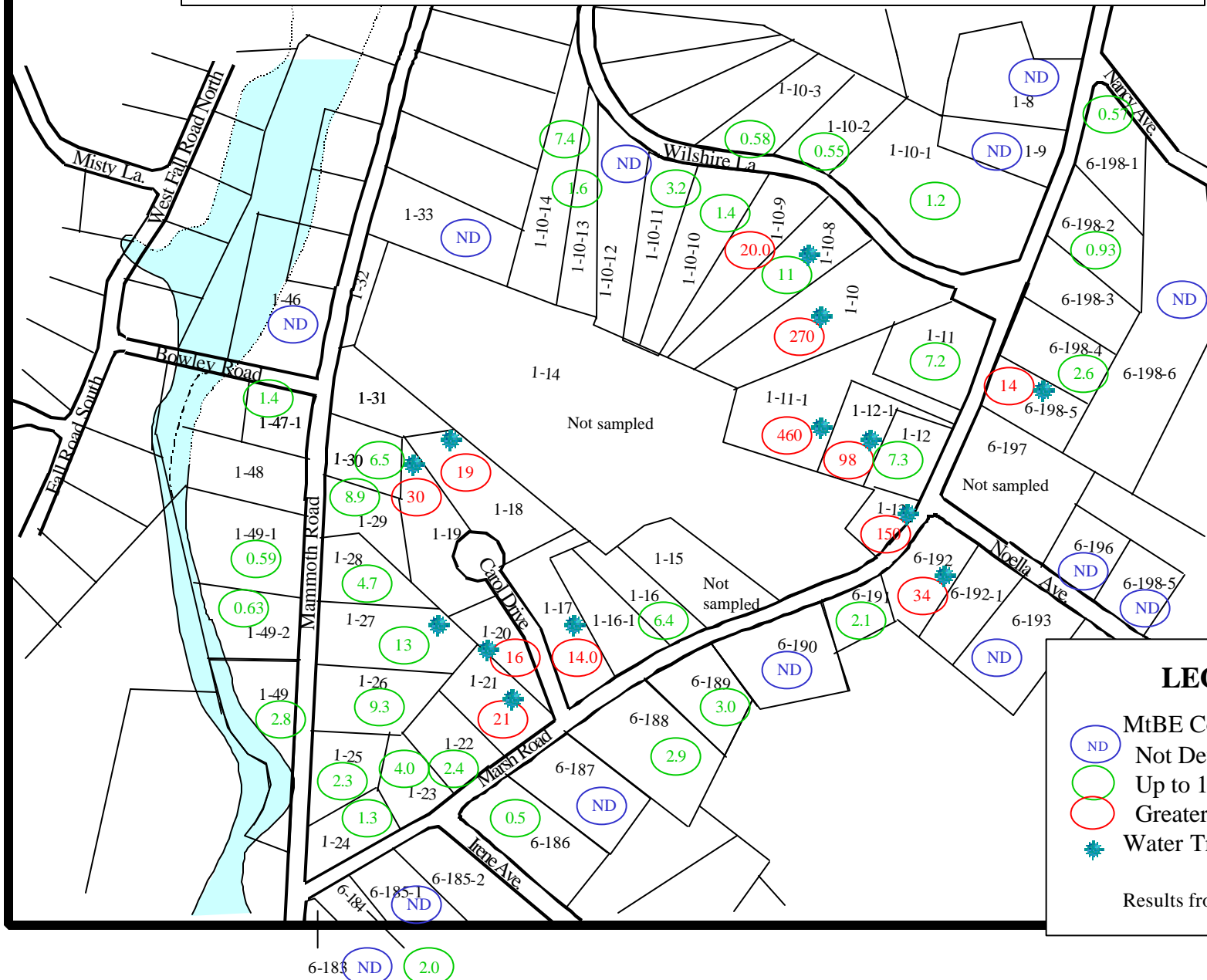
cc: Pelham Town Administrator
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ

MTBE DETECTIONS IN UNTREATED WATER

Marsh Road Study Area

Pelham, New Hampshire

DES#199907056



January 18, 2002

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *January 2002 Project Status Update*
(DES #199907056-SPILL/RLS-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to inform you of the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this homeowner. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 60 water supply wells in the area.

In May 2000, DES reduced the drinking water quality standard for MtBE from 70 parts per billion to 13 parts per billion, making it more stringent. It should be noted that this standard is the lowest standard in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our new standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 17 residential drinking water wells have detected concentrations of MtBE exceeding DES's drinking water standards on one or more occasions.

Sampling Results Summary

Since August 2000, DES has completed water quality sampling on 59 residential drinking water wells and one commercial water supply well (not used for drinking) in the area. Results are summarized below:

- MtBE has been detected in 50 residential drinking water wells and the commercial water supply well. Concentrations of MtBE in 17 of the residential water supply wells

have been above the drinking water standard. MtBE has also been detected in the commercial well at a concentration exceeding the drinking water standard.

- To date DES has installed treatment systems on 14 of the residential wells where MtBE has been detected above the drinking water standard. DES is in the process of evaluating treatment system installations for two other residential wells.
- Fifty-six of the residential drinking water wells and the commercial well have been sampled on more than one occasion. Overall, the concentrations do not appear to have decreased since August of 2000. The concentrations appear to be fluctuating with seasonal changes in the water table and with changes in water use. Generally, concentrations were lower in spring of 2001 than during both 2000 and 2001 summer sampling events. Concentrations detected this fall were similar to those detected this summer and in summer 2000.
- Other gasoline-related volatile organic compounds have been detected in 18 of the residential drinking water supply wells and in the commercial well. These compounds include benzene, toluene, xylenes, and 1,2-dichloroethane, which were all detected below the drinking water standards. Tertiary-amyl methyl ether (TAME) tertiary butyl alcohol (TBA), and di-isopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for TAME, TBA, and DIPE.
- Chlorination byproducts have been detected in 11 drinking water wells. Possible sources of chlorine include chlorine disinfection of wells, pools or hot tubs, laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE and Migration

As part of the work on this project, DES has looked into the potential sources of the gasoline and MtBE detected in the study area. DES believes that the sampling completed to date shows various potential source areas:

- 1) The area around 180 Marsh Road, an auto dismantling operation. In September 2000, DES requested that the auto dismantler perform an Initial Site Characterization to investigate a previous release of an unknown amount of a petroleum product through a floor drain and dry well system removed from the property in 1999. During the Initial Site Characterization, benzene, naphthalene, alkylbenzenes, and MtBE were detected above the drinking water standards in overburden groundwater in the vicinity of the former floor drain and dry well system. Concentrations of MtBE ranged from 35 parts per billion to 811 parts per billion.

Based on the confirmed release of petroleum identified in the Initial Site Characterization, DES requested that the auto dismantler conduct a Site Investigation (SI) to define the extent and magnitude of contamination at the site and off-site surrounding

areas. The owner stated that he was unable to comply with DES's SI request deadline, so DES hired an environmental consultant, Roy F. Weston, Inc. (Weston), to perform the investigation.

SI activities completed by Roy F. Weston to date include a site walkover, installation of two overburden monitoring wells, and advancement of five soil borings. Volatile organic compound screening levels in the soil borings were moderately elevated toward the ground surface and decreased with depth in the soil column, indicating that volatile organic compounds have been introduced to the environment at the surface and are potentially seeping down toward the water table. DES is requiring the auto dismantler to review his practices to determine where releases of petroleum products might occur and to modify his practices to prevent releases.

During the field activities, stormwater runoff was observed flowing north from the subject property and ponding on the adjacent Lot 1-11-1. Transport of petroleum products by stormwater is being considered as part of the conceptual model development for the site.

The SI report will be completed in February 2002, and DES will use the information collected to select an appropriate method for cleaning up the contamination.

- 2) Small spills and releases of gasoline by one or more homeowners, or home businesses, throughout the study area. These types of releases are evidenced by the trace concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to either of the above source areas.

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Thin soil and shallow bedrock means that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination. The predominant directions of groundwater flow and MtBE migration appear to be toward the northeast and southwest. However, higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions.

Future Work by DES

To ensure protection of the public health, DES will continue with the following measures:

- 1) Continue investigations and remediation at 180 Marsh Road.
- 2) Maintain and service the existing residential drinking water treatment systems.

- 3) Complete routine sampling of residential drinking water wells in the study area. Sampling of drinking water wells in the study area will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Install additional drinking water treatment systems, as appropriate.
- 5) Provide periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline," provided in DES's June 19, 2001 letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please pass this information on to friends and visit the DES web site @ www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kim
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

SYK:mal
H:\Skirn\MRA\newsltr_1201.doc

Enclosures: *Marsh Road Area Map*

cc: Pelham Town Administrator
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ

M:\Design\DWG\NHDES\PELHAM\FIG4-1.dwg, Layout1, 11/6/2003 10:00:30 AM, girardeb, 1:1



- LEGEND**
- WATER SUPPLY WELL
 - MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
 - MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
 - MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING NOV. 2001 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
11/2001 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	JAN 2002	DES. ENG.	DATE	W. O. NO.	01395 052 002
CHECKED				APPROVED		DWG. NO.	4-1

April 12, 2002

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *April 2002 Project Status Update*
(DES #199907056-SPILL/RLS-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to inform you of the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, the northern end of Robin Road, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this residence. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 67 water supply wells in the area.

In May 2000, DES reduced the drinking water quality standard for MtBE from 70 parts per billion to 13 parts per billion, making it more stringent. It should be noted that this standard is the lowest standard in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 18 water supply wells have detected concentrations of MtBE exceeding DES's drinking water standards on one or more occasions.

Sampling Results Summary

Since August 2000, DES has completed water quality sampling on 65 residential drinking water wells and two commercial water supply wells (not used for drinking) in the area. Results are summarized below:

- During the most recent sampling event, MtBE was detected in 52 residential drinking water wells and both commercial water supply wells. Concentrations of MtBE in 13 of the residential water supply wells were above the drinking water standard. MtBE

was also detected in the commercial wells at concentrations exceeding the drinking water standard.

- To date DES has installed treatment systems on 14 of the residential wells where MtBE has been detected above the drinking water standard. DES is in the process of evaluating treatment system installations for three other residential wells.
- Overall, the concentrations do not appear to have decreased since August of 2000. The concentrations appear to be fluctuating with seasonal changes in the water table and with changes in water use. Generally, concentrations have been lower in winter and spring than fall and summer sampling events.
- During the most recent sampling event, other gasoline-related volatile organic compounds were detected in 14 of the residential drinking water supply wells. These compounds include benzene, toluene, p-isopropyltoluene, and 1,2-dichloroethane, which were all detected below the drinking water standards. Tertiary-amyl methyl ether (TAME) tertiary butyl alcohol (TBA), ethyl tertiary-butyl ether (EtBE), and di-isopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for TAME, TBA, EtBE, and DIPE.
- During the most recent sampling event, chlorinated compounds were detected in 12 water supply wells. Possible sources of these compounds include cleaning products; chlorine disinfection of wells, pools or hot tubs; and laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE

As part of the work on this project, DES hired an environmental consultant, Roy F. Weston, Inc. (Weston), to investigate potential sources of MtBE contamination in the Marsh Road area. Based on the following information provided in Weston's *Site Investigation Report* and *Supplemental Site Investigation Report*, DES has determined that the auto dismantling operation at 180 Marsh Road is the primary source of MtBE to groundwater in the Marsh Road area:

1. Methyl tertiary butyl ether (MtBE) has been detected at concentrations significantly above the ambient groundwater quality standard (AGQS) in groundwater beneath the auto dismantling operation and the surrounding Marsh Road area (WESTON, 2002).
2. The highest groundwater MtBE concentrations in the Marsh Road area were detected in samples from a monitoring well at the auto dismantling facility and a water supply well on an abutting property adjacent to the auto dismantling area (WESTON, 2002).

3. The auto dismantler is located in a bedrock recharge area, with no significant overburden groundwater upgradient of the facility. Bedrock groundwater flows radially away from the majority of the auto dismantler's property (WESTON, 2002).
4. Surface soil samples collected outside the auto dismantler's service bay exhibited strong gasoline odors and high photo ionization detector (PID) readings. Gasoline odors and PID concentrations decreased with depth in these borings, indicating that gasoline has been released at the ground surface in this area (WESTON, 2002).
5. While sampling groundwater at the auto dismantling facility on February 20, 2002, personnel from Weston observed an outdoor pile of drained automobile gasoline tanks, which was not observed during the previous sampling event. The pile was located immediately upgradient of two monitoring wells where MtBE concentrations increased significantly between the December 2001 and February 2002 groundwater sampling events (WESTON, 2002).

Based on the above information, DES issued the auto dismantler a letter of responsibility requiring that he complete additional corrective action work including groundwater sampling and preparation of a Remedial Action Plan. DES has also recommended that the auto dismantler schedule an appointment for DES Pollution Prevention Specialists to evaluate operations at his facility.

The letter of responsibility requires that the auto dismantler reply, in writing, by April 18, 2002 regarding his ability and intent to perform the required work. If the dismantler does not agree to complete the corrective action work, DES will direct Weston to perform the work and will take such actions necessary to recover these costs from the responsible party.

Groundwater and MtBE Migration

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. The following excerpt from Weston's *Site Investigation Report* describes groundwater flow in the Marsh Road area:

Groundwater at the Site and vicinity originates as precipitation falling on the landscape and surrounding upland areas to the northeast... In some portions of the Site the precipitation infiltrates into the ground, migrating vertically through the unsaturated zone until it reaches the bedrock surface. During drier periods of the year, the water may flow along the top of the bedrock until it reaches a fracture, upon which time it will enter the fracture and move vertically downward until it reaches the water table in the bedrock. During wetter periods, when the rate of groundwater recharge exceeds the rate at which groundwater can move into bedrock, a perched water table will develop in the overburden on top of the bedrock surface. Groundwater flow in this perched zone will be dictated by the depth and slope of the bedrock surface and is likely localized and highly variable... the overburden groundwater that exists along the north

and east sides of (the auto dismantling garage) flows in an easterly direction towards the residences located on Wilshire Lane and Marsh Road (WESTON, 2002).

Regionally, groundwater in the bedrock moves in a radial pattern through the fractures and joints away from the highland areas (WESTON, 2002).

Thin soil and shallow bedrock mean that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination.

The predominant direction of MtBE migration appears to be toward the northeast and southwest. However, installation of new water supply wells and higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions.

Future Work by DES

To protect public health and the environment, DES will ensure continuation of the following measures:

- 1) Preparation of a Remedial Action Plan for the auto dismantling facility.
- 2) Maintenance of existing residential drinking water treatment systems.
- 3) Routine sampling of residential drinking water wells in the study area. This sampling will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Installation of additional drinking water treatment systems, as appropriate.
- 5) Distribution of periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline," provided in DES's June 19, 2001 letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please pass this information on to friends and visit the DES web site @ www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kim
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

SYK:mal
H:\Skirn\MRA\newsltr_0402.doc

Enclosures: *Marsh Road Area Map*

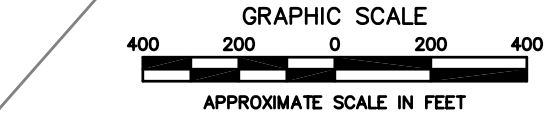
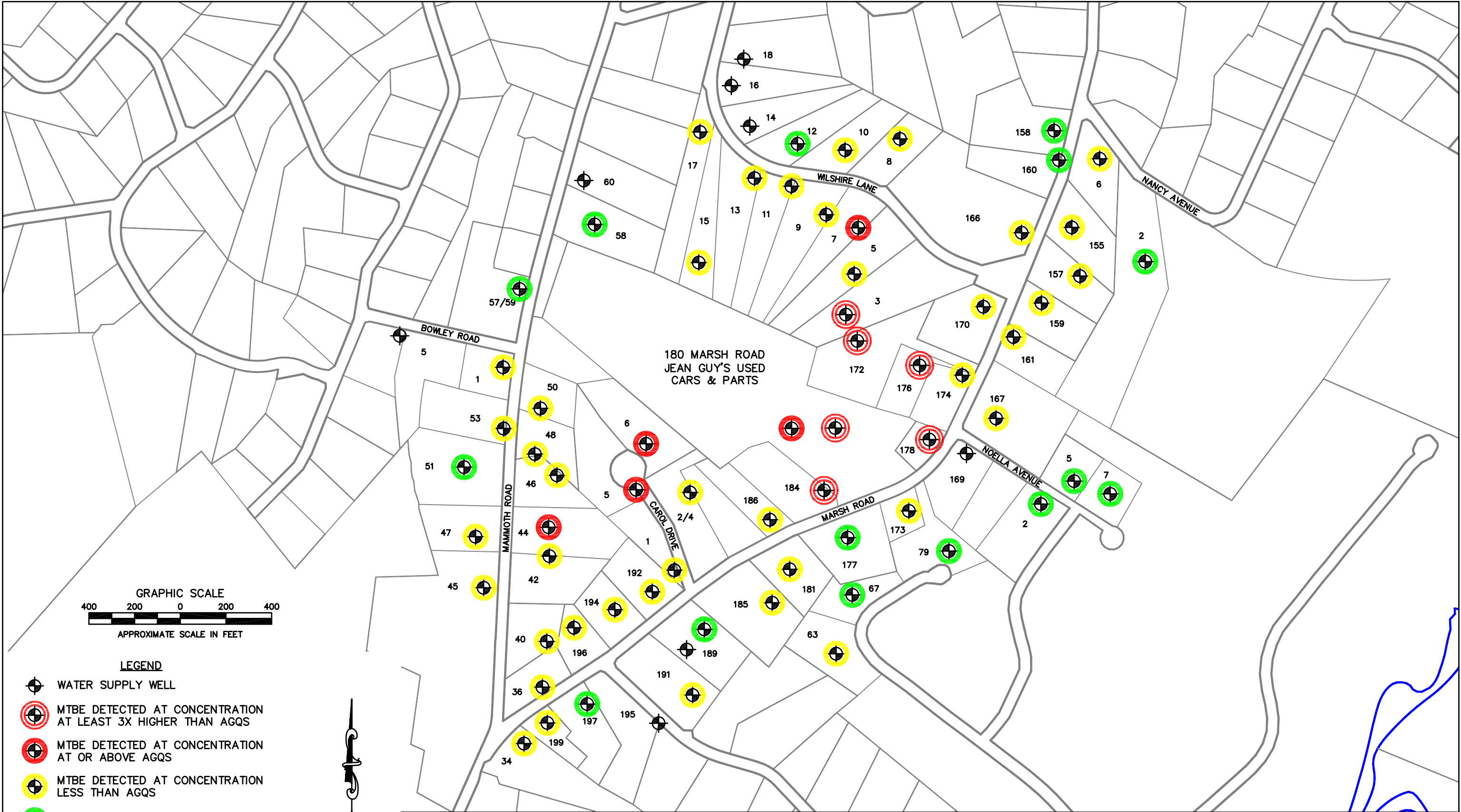
cc: Greg Farris, Town of Pelham
Roland Soucy, Town of Pelham
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ
David Gordon, DHHS

REFERENCES

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, New Hampshire, NHDES Site # 199907056*. February.

WESTON (Roy F. Weston, Inc.). 2002. *Supplemental Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. March.

M:\Design\DWG\NHDES\PELHAM\2-2002 Rpt\FIG-1.dwg, Layout1, 11/6/2003 10:05:17 AM, gjrardab, 1:1



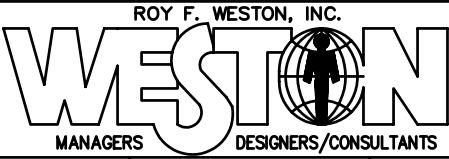
LEGEND

- WATER SUPPLY WELL
- MTBE DETECTED AT CONCENTRATION AT LEAST 3X HIGHER THAN AGQS
- MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
- MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
- MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING FEB. 2002 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
2/2002 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	JAN 2002	DES. ENG.	DATE	W. O. NO.	01395 052 002
CHECKED				APPROVED		DWG. NO.	1

June 20, 2002

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *June 2002 Project Status Update*
(DES #199907056-SPILL/RLS-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to inform you of the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, the northern end of Robin Road, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this residence. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 68 water supply wells in the area.

In May 2000, DES reduced the drinking water quality standard for MtBE from 70 parts per billion to 13 parts per billion, making it more stringent. It should be noted that this standard is the lowest standard in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 19 water supply wells have detected concentrations of MtBE exceeding DES's drinking water standards on one or more occasions.

Sampling Results Summary

During May 2002, DES completed water quality sampling on 64 residential drinking water wells and two commercial water supply wells (not used for drinking) in the area. Results are summarized below:

- During the most recent sampling event, MtBE was detected in 49 residential drinking water wells and both commercial water supply wells. Concentrations of MtBE in 9 of the residential water supply wells were above the drinking water standard. MtBE was also detected in the commercial wells at concentrations exceeding the drinking water standard.

- Overall, MtBE concentrations do not appear to have decreased significantly since August of 2000.
- To date DES has installed treatment systems on 15 of the residential wells where MtBE has been detected above the drinking water standard. DES is in the process of evaluating treatment system installations for two other residential wells.
- During the most recent sampling event, other gasoline-related volatile organic compounds were detected in 19 of the water supply wells. These compounds include benzene, toluene, xylenes, p-isopropyltoluene, 1,2-dichloroethane, and 1,4-dichlorobenzene, which were all detected below the drinking water standards. Ethyl tertiary-butyl ether (EtBE), tertiary amyl methyl ether (TAME), and di-isopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for EtBE, TAME, and DIPE.
- During the most recent sampling event, chlorinated compounds were detected in 12 water supply wells. Possible sources of these compounds include cleaning products; degreasers; chlorine disinfection of wells, pools or hot tubs; and laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE

As part of the work on this project, DES hired an environmental consultant, Roy F. Weston, Inc. (Weston), to investigate potential sources of MtBE contamination in the Marsh Road area. Based on information provided in Weston's reports titled *Site Investigation Report*, *Supplemental Site Investigation Report*, and *Site Investigation Report Supplemental: Evaluation of Potential Source Areas*, DES has determined that the auto dismantling operation at 180 Marsh Road is the primary source of MtBE to groundwater in the Marsh Road area.

DES issued the auto dismantler a letter of responsibility requiring that he complete additional corrective action work including groundwater monitoring and preparation of a Remedial Action Plan. DES also recommended that the auto dismantler schedule an appointment for DES Pollution Prevention Specialists to evaluate operations at his facility.

The auto dismantler has indicated a willingness to work with DES but has not committed to preparing the Remedial Action Plan or conducting groundwater monitoring. He continues to allow DES and Weston access to his property to conduct the necessary work, however. The auto dismantler has also taken the following actions to comply with DES's requirements:

1. The auto dismantler has registered the 1000-gallon above ground storage tank that is used to store gasoline removed from vehicles.
2. The auto dismantler has scheduled an appointment for DES Pollution Prevention Specialists to evaluate operations at his facility.

3. The auto dismantler is installing treatment systems for the two wells on his commercial property and for the well at his residence. These treatment systems are being installed, as part of the remedial action for the site, to prevent discharge of contaminated well water to the ground by way of the septic leach fields.

DES has directed Weston to continue groundwater monitoring and to prepare a Remedial Action Plan, and we will take such actions necessary to recover costs for this work from the responsible party.

Groundwater and MtBE Migration

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. The following excerpt from Weston's *Site Investigation Report* describes groundwater flow in the Marsh Road area:

Groundwater at the Site and vicinity originates as precipitation falling on the landscape and surrounding upland areas to the northeast... In some portions of the Site the precipitation infiltrates into the ground, migrating vertically through the unsaturated zone until it reaches the bedrock surface. During drier periods of the year, the water may flow along the top of the bedrock until it reaches a fracture, upon which time it will enter the fracture and move vertically downward until it reaches the water table in the bedrock. During wetter periods, when the rate of groundwater recharge exceeds the rate at which groundwater can move into bedrock, a perched water table will develop in the overburden on top of the bedrock surface. Groundwater flow in this perched zone will be dictated by the depth and slope of the bedrock surface and is likely localized and highly variable... the overburden groundwater that exists along the north and east sides of (the auto dismantling garage) flows in an easterly direction towards the residences located on Wilshire Lane and Marsh Road (WESTON, 2002).

Regionally, groundwater in the bedrock moves in a radial pattern through the fractures and joints away from the highland areas (WESTON, 2002).

Thin soil and shallow bedrock mean that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination.

The predominant direction of MtBE migration appears to be toward the northeast and southwest. However, installation of new water supply wells and higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions.

Future Work by DES

To protect public health and the environment, DES will ensure continuation of the following measures:

- 1) Preparation of a Remedial Action Plan for the auto dismantling facility.
- 2) Maintenance of existing residential drinking water treatment systems.
- 3) Routine sampling of residential drinking water wells in the study area. This sampling will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Installation of additional drinking water treatment systems, as appropriate.
- 5) Distribution of periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline," provided in DES's June 19, 2001 letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please pass this information on to friends and visit the DES web site @ www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kirn
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

SYK:mal
H:\Skirn\MRA\newsltr_0602.doc

Enclosures: *Marsh Road Area Map*

cc: Greg Farris, Town of Pelham
Roland Soucy, Town of Pelham
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ
David Gordon, DHHS
Pamela Sprague, DES, WMD
Paul Lockwood, DES, WMD
File

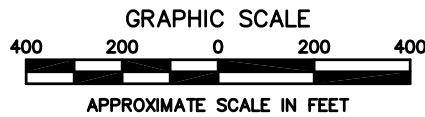
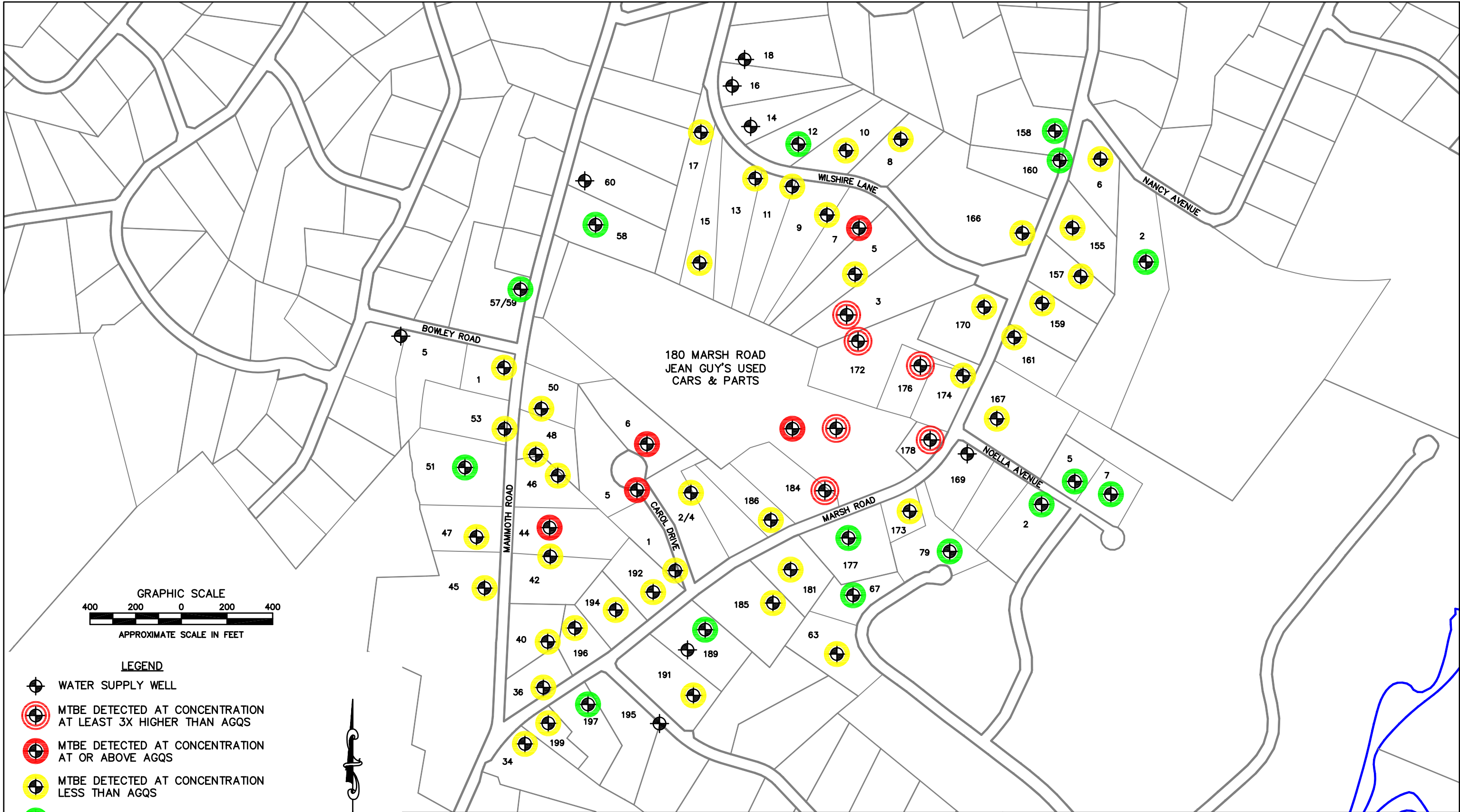
REFERENCES

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, New Hampshire, NHDES Site # 199907056*. February.

WESTON (Roy F. Weston, Inc.). 2002. *Supplemental Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. March.

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report Supplemental: Evaluation of Potential Source Areas, NHDES Site No. 199907056*. April.

M:\Design\DWG\NHDES\PELHAM\5-2002 Rpt\FIG-1.dwg, Layout1, 11/6/2003 10:14:25 AM, gjrardab, 1:1



LEGEND

- WATER SUPPLY WELL
- MTBE DETECTED AT CONCENTRATION AT LEAST 3X HIGHER THAN AGQS
- MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
- MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
- MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING MAY 2002 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
MAY 2002 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	MAY 2002	DES. ENG.	DATE	W. O. NO.	01395 052 002
CHECKED				APPROVED		DWG. NO.	1

November 6, 2002

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *October 2002 Project Status Update*
(DES #199907056-SPILL/RLS-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to update you on the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, the northern end of Robin Road, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this residence. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 68 water supply wells in the area.

The New Hampshire drinking water standard for MtBE, 13 parts per billion, is one of the lowest in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 20 water supply wells in the Marsh Road area have shown concentrations of MtBE exceeding DES's drinking water standard on one or more occasions.

Sampling Results Summary

During August 2002, DES completed water quality sampling on 65 residential drinking water wells and one commercial water supply well (not used for drinking) in the area. Results are summarized below:

- During the most recent sampling event, MtBE was detected in 52 residential drinking water wells and the commercial water supply well. Concentrations of MtBE in 11 of the residential water supply wells were above the drinking water standard. MtBE was also detected in the commercial well at a concentration exceeding the drinking water standard.

- Overall, MtBE concentrations do not appear to have decreased significantly since August of 2000.
- To date DES has installed treatment systems on 15 of the residential wells where MtBE has been detected above the drinking water standard. DES is in the process of evaluating treatment system installations for two other residential wells.
- During the most recent sampling event, other gasoline-related volatile organic compounds were detected in 18 of the water supply wells. These compounds include toluene, xylenes, p-isopropyltoluene, naphthalene, 1,2-dichloroethane, and 1,4-dichlorobenzene, which were all detected below the drinking water standards. Ethyl tertiary-butyl ether (EtBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), and di-isopropyl ether (DIPE) were also detected in drinking water wells in the Marsh Road area. There are currently no drinking water standards for EtBE, TAME, TBA, and DIPE.
- During the most recent sampling event, chlorinated compounds were detected in 13 water supply wells. Possible sources of these compounds include cleaning products; degreasers; chlorine disinfection of wells, pools or hot tubs; and laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE

As part of the work on this project, DES hired an environmental consultant, Weston Solutions, Inc. (formerly Roy F. Weston, Inc.), to investigate potential sources of MtBE contamination in the Marsh Road area. Based on information provided in Weston Solutions, Inc. (Weston) reports titled *Site Investigation Report*, *Supplemental Site Investigation Report*, and *Site Investigation Report Supplemental: Evaluation of Potential Source Areas*, DES determined that the auto dismantling operation at 180 Marsh Road is the primary source of MtBE to groundwater in the Marsh Road area.

Additionally, small spills and releases of gasoline by one or more homeowners throughout the study area cannot be ruled out as possible contributors of MtBE to the Marsh Road area. These types of releases are evidenced by the trace concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to the auto dismantling facility.

Groundwater and MtBE Migration

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Data collected to date show that overburden groundwater (groundwater existing in the soil overlying bedrock) north and east of the dismantling shop flows north and east, toward the residences near the intersection of Marsh Road and Wilshire Lane (WESTON, 2002).

Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Bedrock groundwater is expected to migrate "in a radial pattern" away from the high points in the Marsh Road area, through fractures and joints in the bedrock (WESTON, 2002). However, installation of new water supply wells and higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions. The predominant direction of MtBE migration appears to be toward the northeast and southwest.

Remedial Actions

DES contracted with Weston to complete a remedial action plan for cleaning up the contamination in the Marsh Road area. Based on the remedial option evaluation in Weston's *Remedial Action Plan*, DES determined that a combination of soil excavation, oxygen enhancement, continued POE maintenance, and natural attenuation should work effectively to reduce contamination in the Marsh Road area, provided additional gasoline is not released to the ground.

In October, Weston oversaw excavation of approximately 40 tons of petroleum-contaminated soil from the auto dismantling facility. The soil was transported off-site for disposal, and clean fill was placed in the excavation. An oxygen-enhancing compound was also added to the excavation. The oxygen-enhancing compound is expected to aid in the cleanup of overburden groundwater by increasing biodegradation of petroleum contamination.

To prevent gasoline releases from vehicles stored at the site, the auto dismantler has agreed to siphon gasoline from vehicles immediately after they arrive at the facility. The dismantler has also agreed to pave the area around the dismantling shop, to prevent any incidental gasoline spills from infiltrating the ground surface.

Future Work by DES

To protect public health and the environment, DES will ensure continuation of the following measures:

- 1) Overburden groundwater sampling on the auto dismantler's property to monitor the effectiveness of the remedial actions.
- 2) Maintenance of existing drinking water treatment systems.
- 3) Routine sampling of residential drinking water wells in the study area. This sampling will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Installation of additional drinking water treatment systems, as appropriate.
- 5) Distribution of periodic information updates to homeowners within the study area neighborhood.

What You, The Homeowner, Can Do

Thin soil and shallow bedrock mean that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination from these types of incidental releases.

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Technical Bulletin "Consumer Tips for the Safe Management of Gasoline," provided in DES's June 19, 2001 letter.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals (see enclosed Fact Sheet). Please pass this information on to friends and visit the DES web site at www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kim
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

SYK:
H:\Skirn\MRA\newsltr_1002.doc

Enclosures: *Marsh Road Area Map*

cc: Greg Farris, Town of Pelham, with enclosure
Roland Soucy, Town of Pelham, with enclosure
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ
David Gordon, DHHS, with enclosure
Pamela Sprague, DES, WMD, with enclosure
Bernie Lucey, DES WD, with enclosure
David Reid, ORCB, with enclosure
File, with enclosure

Route: George Lombardo, P.E., ORCB

REFERENCES

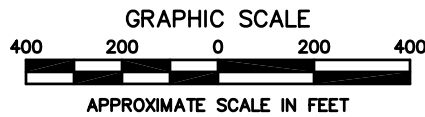
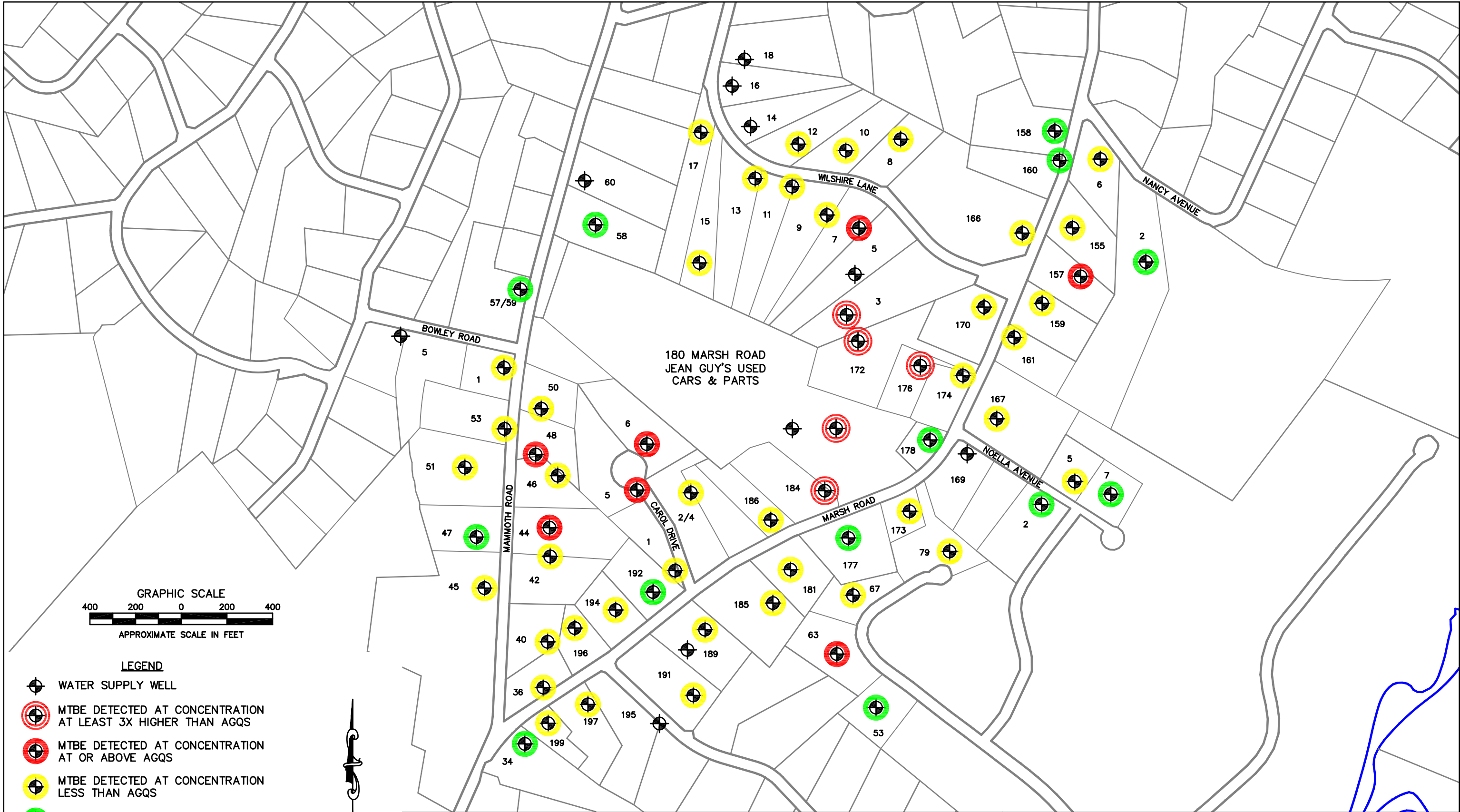
WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, New Hampshire, NHDES Site # 199907056*. February.

WESTON (Roy F. Weston, Inc.). 2002. *Supplemental Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. March.

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report Supplemental: Evaluation of Potential Source Areas, NHDES Site No. 199907056*. April.

WESTON (Weston Solutions, Inc.). 2002. *Remedial Action Plan, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. August.

M:\Design\DWG\NHDES\PELHAM\8-2002 Rpt\FIG-2.dwg, Layout1, 11/6/2003 10:16:44 AM, gjrardab, 1:1



LEGEND

- WATER SUPPLY WELL
- MTBE DETECTED AT CONCENTRATION AT LEAST 3X HIGHER THAN AGQS
- MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
- MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
- MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING AUGUST 2002 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
AUGUST 2002 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	OCT 2002	DES. ENG.	DATE	W. O. NO.	01395 052 003
CHECKED				APPROVED		DWG. NO.	2

March 10, 2003

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *March 2003 Project Status Update*
(DES #199907056-ETHER-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to update you on the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, the northern end of Robin Road, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this residence. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 68 water supply wells in the area.

The New Hampshire drinking water standard for MtBE, 13 parts per billion, is one of the lowest in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 20 water supply wells in the Marsh Road area have shown concentrations of MtBE exceeding DES's drinking water standard on one or more occasions.

Sampling Results Summary

During December 2002, DES completed water quality sampling on 59 residential drinking water wells and one commercial water supply well (not used for drinking) in the area. Results are summarized below:

- During the most recent sampling event, MtBE was detected in 46 residential drinking water wells and the commercial water supply well. Concentrations of MtBE in 10 of the residential water supply wells were above the drinking water standard. MtBE was also detected in the commercial well at a concentration exceeding the drinking water standard.

- MtBE concentrations detected in December 2002 were generally lower than those previously detected. However, the historic data for this area shows that MtBE levels have fluctuated seasonally, with lower concentrations detected in the winter/spring and higher concentrations in the summer/fall. Therefore, DES believes that it is too early to determine whether the low December 2002 concentrations indicate the beginning of a sustained overall decrease.
- To date DES has installed treatment systems on 15 of the residential wells where MtBE has been detected above the drinking water standard. DES is in the process of evaluating treatment system installations for two other residential wells.
- During the most recent sampling event, other gasoline-related volatile organic compounds were detected in 17 of the water supply wells. These compounds include ethyl tertiary-butyl ether (EtBE), tertiary amyl methyl ether (TAME), and diisopropyl ether (DIPE). There are currently no drinking water standards for EtBE, TAME, and DIPE.
- During the most recent sampling event, chlorinated compounds were detected in 9 water supply wells. Possible sources of these compounds include cleaning products; degreasers; chlorine disinfection of wells, pools or hot tubs; and laundering and other septic system discharges.

The enclosed map shows the locations of drinking water wells that have been sampled and the most recent data on MtBE concentrations in each well.

Source of the MtBE

As part of the work on this project, DES hired an environmental consultant, Weston Solutions, Inc. (formerly Roy F. Weston, Inc.), to investigate potential sources of MtBE contamination in the Marsh Road area. Based on information provided in Weston Solutions, Inc. (Weston) reports titled *Site Investigation Report*, *Supplemental Site Investigation Report*, and *Site Investigation Report Supplemental: Evaluation of Potential Source Areas*, DES determined that the auto dismantling operation at 180 Marsh Road is the primary source of MtBE to groundwater in the Marsh Road area.

Additionally, small spills and releases of gasoline by one or more homeowners throughout the study area cannot be ruled out as possible contributors of MtBE to the Marsh Road area. These types of releases are evidenced by the trace concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to the auto dismantling facility.

Groundwater and MtBE Migration

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Data collected to date show that overburden groundwater (groundwater existing in the soil overlying bedrock) north and east of the dismantling shop flows north and east, toward the residences near the intersection of Marsh Road and Wilshire Lane (WESTON, 2002).

Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Bedrock groundwater is expected to migrate "in a radial pattern" away from the high points in the Marsh Road area, through fractures and joints in the bedrock (WESTON, 2002). However, installation of new water supply wells and higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions. The predominant direction of MtBE migration appears to be toward the northeast and southwest.

Remedial Actions

DES contracted with Weston to complete a remedial action plan for cleaning up the contamination in the Marsh Road area. Based on the remedial option evaluation in Weston's *Remedial Action Plan*, DES determined that a combination of soil excavation, oxygen enhancement, continued POE maintenance, and natural attenuation should work effectively to reduce contamination in the Marsh Road area, provided additional gasoline is not released to the ground.

In October, Weston oversaw excavation of approximately 59 tons of petroleum-contaminated soil from the auto dismantling facility. The soil was transported off-site for disposal, and clean fill was placed in the excavation. An oxygen-enhancing compound was also added to the excavation. The oxygen-enhancing compound is expected to aid in the cleanup of overburden groundwater by increasing biodegradation of petroleum contamination (WESTON, 2003).

To prevent gasoline releases from vehicles stored at the site, the auto dismantler has agreed to siphon gasoline from vehicles immediately after they arrive at the facility. The dismantler has also agreed to pave the area around the dismantling shop, to prevent any incidental gasoline spills from infiltrating the ground surface.

Future Work by DES

To protect public health and the environment, DES will ensure continuation of the following measures:

- 1) Overburden groundwater sampling on the auto dismantler's property to monitor the effectiveness of the remedial actions.
- 2) Maintenance of existing drinking water treatment systems.
- 3) Routine sampling of residential drinking water wells in the study area. This sampling will be conducted at three-month intervals, or until the risk of contamination from the gasoline is mitigated.
- 4) Installation of additional drinking water treatment systems, as appropriate.
- 5) Distribution of periodic information updates to homeowners within the study area neighborhood. From this point forward, DES will mail project status updates to residents of the Marsh Road area at approximate six-month intervals, rather than three-month intervals.

What You, The Homeowner, Can Do

Thin soil and shallow bedrock mean that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Drinking water wells located near septic systems, storage sheds, driveways, roads and pools are at greater risk of contamination from these types of incidental releases.

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Fact Sheet CO-10 “Consumer Tips for the Safe Management of Gasoline,” available on our website at www.des.state.nh.us/factsheets/co/co-10.htm.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor’s too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals. Please pass this information on to friends and visit the DES web site at www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kirn
NH Department of Environmental Services
6 Hazen Drive
Concord, NH 03302
Phone #: (603) 271-6645

Private Well Testing Initiative

Recently, DES launched a Private Well Testing Initiative to encourage private well owners to periodically test their drinking water wells. Although there is no state requirement for testing water quality of private wells, DES recommends that all New Hampshire residents with private wells test them for an array of frequently occurring contaminants. The recommended parameters are identified on Fact Sheet WD-WSEB-2-1, “Suggested Water Quality Testing for Private Wells”, which can be downloaded from the DES website at www.des.state.nh.us/factsheets/ws/ws-2-1.htm.

One category of particular interest in Pelham is the very high level of naturally occurring radioactivity. Radon, radium, and uranium are examples of naturally occurring radioactivity. Although there are no tastes, colors, or odors associated with radioactive contaminants, there are health affects associated with consuming water that exceeds the health standard for these

contaminants. DES urges all citizens to have their well water tested for radon and alpha radionuclides. Please call Bernie Lucey of the DES Water Supply Engineering Bureau, at (603) 271-2952, if you have questions on radionuclides in groundwater.

Please note that the above information on the Private Well Testing Initiative and natural radionuclides in groundwater is provided for your information as a private well owner. DES does not believe high radioactivity levels in Pelham are related to any human activity in the Marsh Road Area, including the auto dismantler's operations.

SYK:

H:\Skirn\MRA\newsltr_0103.doc

Enclosures: *Marsh Road Area Map*

cc: Greg Farris, Town of Pelham, with enclosure
Roland Soucy, Town of Pelham, with enclosure
Jim Ricker, Roy F. Weston
Richard Head, Esq., NH DOJ, with enclosure
David Gordon, DHHS, with enclosure
Pamela Sprague, DES, WMD, with enclosure
Bernie Lucey, DES WD, with enclosure
David Reid, ORCB, with enclosure
File, with enclosure

Route: George Lombardo, P.E., ORCB

REFERENCES

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, New Hampshire, NHDES Site # 199907056*. February.

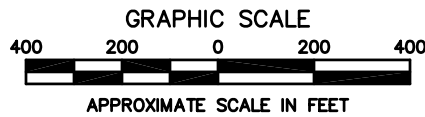
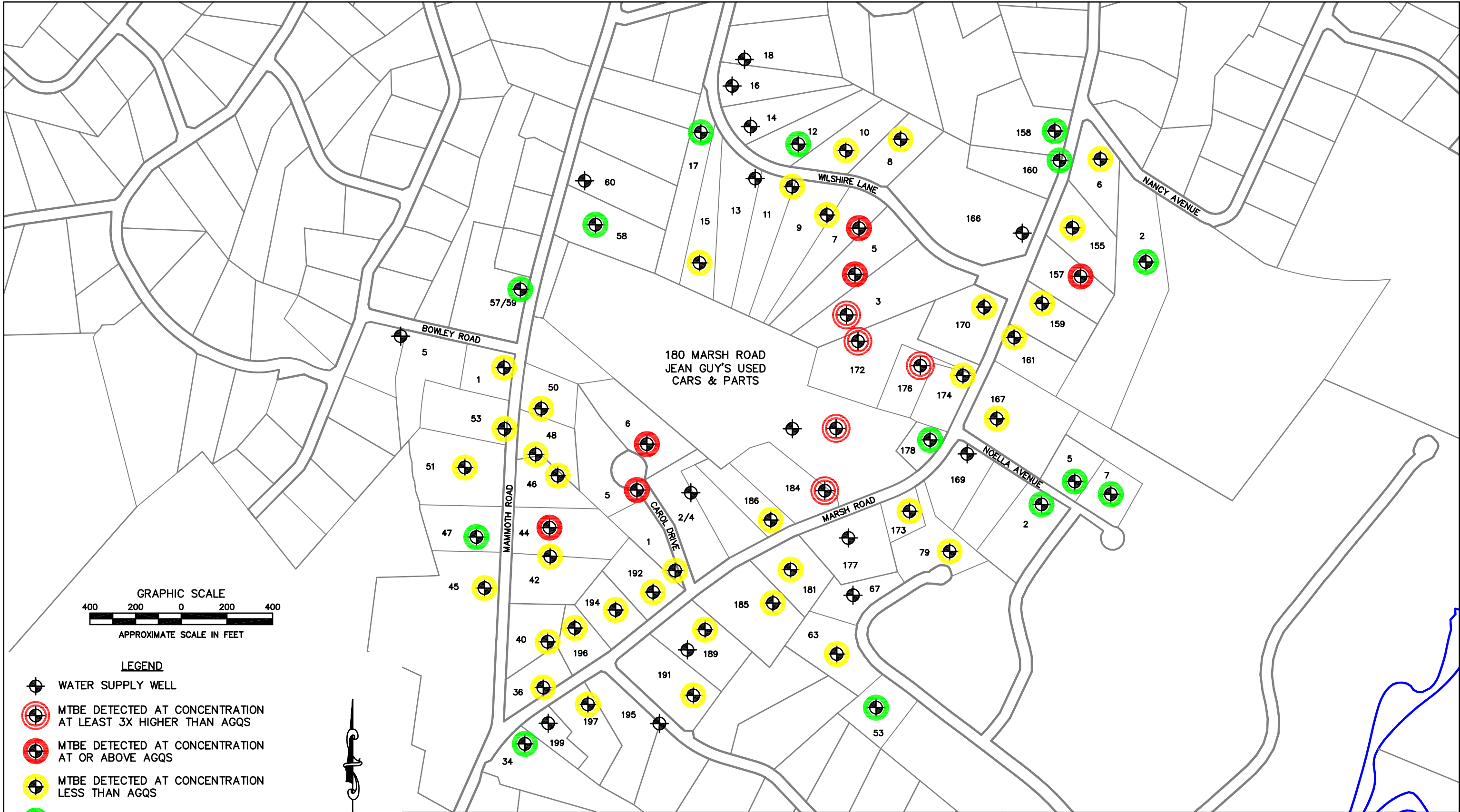
WESTON (Roy F. Weston, Inc.). 2002. *Supplemental Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. March.

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report Supplemental: Evaluation of Potential Source Areas, NHDES Site No. 199907056*. April.

WESTON (Weston Solutions, Inc.). 2002. *Remedial Action Plan, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. August.

WESTON (Weston Solutions, Inc.). 2003. *Soil Excavation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. February.

M:\Design\DWG\NHDES\PELHAM\12-2002 Rpt\Fig-2.dwg, Layout1, 11/6/2003 10:10:22 AM, girardeb, 1:1



LEGEND

- WATER SUPPLY WELL
- MTBE DETECTED AT CONCENTRATION AT LEAST 3X HIGHER THAN AGQS
- MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
- MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
- MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING THE DECEMBER 2002 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
DECEMBER 2002 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	JAN 2003	DES. ENG.	DATE	W. O. NO.	01395 058 003
CHECKED				APPROVED		DWG. NO.	2



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95,
Concord, NH 03302-0095
(603) 271-3644 FAX (603) 271-2181



March 4, 2004

Resident
Marsh Road Area
Pelham, NH 03076

SUBJECT: PELHAM – Marsh Road Area MtBE: *March 2004 Project Status Update*
(DES #199907056-ETHER-WLP1)

Dear Marsh Road Area Resident:

The purpose of this letter is to update you on the status of the Department of Environmental Services (DES) investigation of contaminated drinking water in your neighborhood. The study area consists of the southern end of Marsh Road, Wilshire Lane, Carol Drive, Noella Avenue, the northern end of Robin Road, and the portion of Mammoth Road near Marsh Road. Land use in this area is mixed residential and commercial with drinking water being obtained from private water supply wells.

Project Background

In July 2000, a homeowner located near the intersection of Marsh Road and Wilshire Lane reported an unpleasant odor and taste in his drinking water well. Between July and August 2000, DES tested eight drinking water wells located in the immediate vicinity of this residence. At that time, gasoline-related compounds were detected in seven of the eight wells sampled. Methyl tertiary butyl ether, also known as MtBE, was the predominant gasoline related compound detected throughout the study area. Since August 2000, DES has completed water quality sampling on 68 water supply wells in the area.

The New Hampshire drinking water standard for MtBE, 13 parts per billion, is one of the lowest in the nation. The United States Environmental Protection Agency has suggested that a drinking water standard somewhere between 20 to 40 parts per billion would be protective of public health and the environment. DES believes that our standard of 13 parts per billion provides a significantly more conservative level of protection of public health and safety. To date, 20 water supply wells in the Marsh Road area have shown concentrations of MtBE exceeding DES's drinking water standard on one or more occasions.

As part of the work on this project, DES hired an environmental consultant, Weston Solutions, Inc. (Weston), to investigate potential sources of MtBE contamination in the Marsh Road area. Based on information provided in Weston reports titled *Site Investigation Report*, *Supplemental Site Investigation Report*, and *Site Investigation Report Supplemental: Evaluation of Potential Source Areas*, DES determined that the auto dismantling operation at 180 Marsh Road is the primary source of MtBE to groundwater in the Marsh Road area.

Additionally, small spills and releases of gasoline by one or more homeowners throughout the study area cannot be ruled out as possible contributors of MtBE to the Marsh Road area. These types of releases are evidenced by the trace concentrations and localized spikes of MtBE scattered throughout the study area that appear unrelated to the auto dismantling facility.

In October 2002, Weston oversaw excavation of approximately 59 tons of petroleum-contaminated soil from the auto dismantling facility. The soil was transported off-site for disposal, and clean fill was placed in the excavation. An oxygen-enhancing compound was also added to the excavation to aid in the cleanup of groundwater contamination by increasing biodegradation of petroleum contamination. Additionally, the auto dismantler implemented new Best Management Practices to prevent gasoline releases on his property.

Since October 2002, DES and Weston have been sampling groundwater at the auto dismantler's property and in area drinking water wells, to monitor the effectiveness of the remedial activities.

Current Status

During November and December 2003, DES completed water quality sampling on 29 residential drinking water wells and 2 commercial water supply wells (not used for drinking) in the area. The enclosed map shows the locations of drinking water wells sampled and the November/December 2003 MtBE data for each well. Results are summarized below:

- During the most recent sampling event, MtBE was detected in 20 residential drinking water wells and one commercial water supply well. Concentrations of MtBE in 3 of the residential water supply wells and the commercial well were above the drinking water standard.
- Overall, MtBE concentrations have significantly decreased since remedial activities were conducted at the auto dismantling facility in October 2002, and the plume of groundwater with MtBE above the drinking water standard has decreased in size.
- Due to the decrease in plume size, DES reduced the number of water supply wells in our sampling program. DES will continue monitoring MtBE concentrations in 31 Marsh Road area water supply wells, on a triannual basis. If concentrations in these wells raise concern regarding water quality in wells which are not included in the current sampling program, we will add wells to the sampling program.
- Between August 2000 and June 2002, DES installed treatment systems on 15 residential wells where MtBE was detected above the drinking water standard. Treatment systems at 5 of these residences, where MtBE concentrations have been below the drinking water standard for at least a year, are scheduled for removal.

Groundwater Migration

Geologically, the depth to bedrock underlying the area is shallow, with only a thin veneer of soil overlying the bedrock in some locations. Data collected to date show that overburden groundwater (groundwater existing in the soil overlying bedrock) north and east of the dismantling shop flows north and east, toward the residences near the intersection of Marsh Road and Wilshire Lane (WESTON, 2002).

Bedrock outcrops can be seen on Wilshire Lane and on the auto dismantler's property. Most of the drinking water wells in the area get their water from fractures, or cracks, in the bedrock. Bedrock groundwater is expected to migrate "in a radial pattern" away from the high points in the Marsh Road area, through fractures and joints in the bedrock (WESTON, 2002). However, installation of new water supply wells and higher seasonal water usage for washing, watering lawns and gardens, or filling pools can cause flow in other directions. The predominant direction of MtBE migration has been toward the northeast and southwest.

Future Work by DES

To protect public health and the environment, DES will ensure continuation of the following measures:

- 1) Groundwater sampling on the auto dismantler's property and in residential water supply wells within the study area, to monitor the decreasing contaminant concentrations.
- 2) Maintenance of existing drinking water treatment systems where the data indicate that use of untreated water should be restricted.
- 3) Installation of additional drinking water treatment systems, if appropriate.
- 4) Posting of periodic information updates on the internet at <http://www.des.state.nh.us/orcb/doclist/PelhamMarsh.pdf>, with distribution via the US mail to individuals who request paper copies of the updates.

What You, The Homeowner, Can Do

Although there is no state requirement for testing water quality of private wells, DES recommends that all New Hampshire residents with private wells test them for an array of frequently occurring contaminants. The recommended parameters are identified on Fact Sheet WD-WSEB-2-1, "Suggested Water Quality Testing for Private Wells", which can be downloaded from the DES website at www.des.state.nh.us/factsheets/ws/ws-2-1.htm.

Thin soil and shallow bedrock mean that spilled gasoline, chlorinated pool water, household chemicals, etc., have a greater chance to percolate through the soil, or be flushed from the soil by rainwater, and seep into the bedrock. Drinking water wells located near septic systems, storage

sheds, driveways, roads and pools are at greater risk of contamination from these types of incidental releases.

To protect public health and the environment, DES has numerous compliance requirements for industry regarding the proper storage and management of gasoline. You, as a homeowner, can also help by following the best management practices outlined in the Fact Sheet CO-10 "Consumer Tips for the Safe Management of Gasoline," available on our website at www.des.state.nh.us/factsheets/co/co-10.htm.

Studies have shown that it can take only one cup of MtBE, or less than one gallon of gasoline, to contaminate up to 5-million gallons of water. For comparison, a family of four consumes about 150,000 gallons of water per year. It would suffice to say that a small amount of gasoline spilled while filling a lawn mower, or while siphoning gasoline from one vehicle or container to another, could contaminate your own well and possibly your neighbor's too.

Community involvement is a strong tool for protecting groundwater quality, by ensuring that all homeowners and businesses follow safe management practices with gasoline and other household chemicals. Please pass this information on to friends and visit the DES web site at www.des.state.nh.us.

If you have any questions, please do not hesitate to contact me at:

Sarah Yuhas Kirn
NH Department of Environmental Services
P.O. Box 95
Concord, NH 03302-0095
Phone #: (603) 271-6645
Email: skirn@des.state.nh.us

Enclosures: *Marsh Road Area Map*

Route: George Lombardo, P.E., ORCB

H:\Skirn\MRA\newsltr_0304.doc

REFERENCES

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, New Hampshire, NHDES Site # 199907056*. February.

WESTON (Roy F. Weston, Inc.). 2002. *Supplemental Site Investigation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. March.

WESTON (Roy F. Weston, Inc.). 2002. *Site Investigation Report Supplemental: Evaluation of Potential Source Areas, NHDES Site No. 199907056*. April.

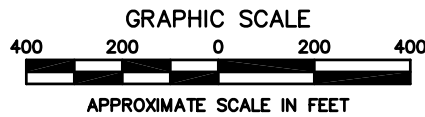
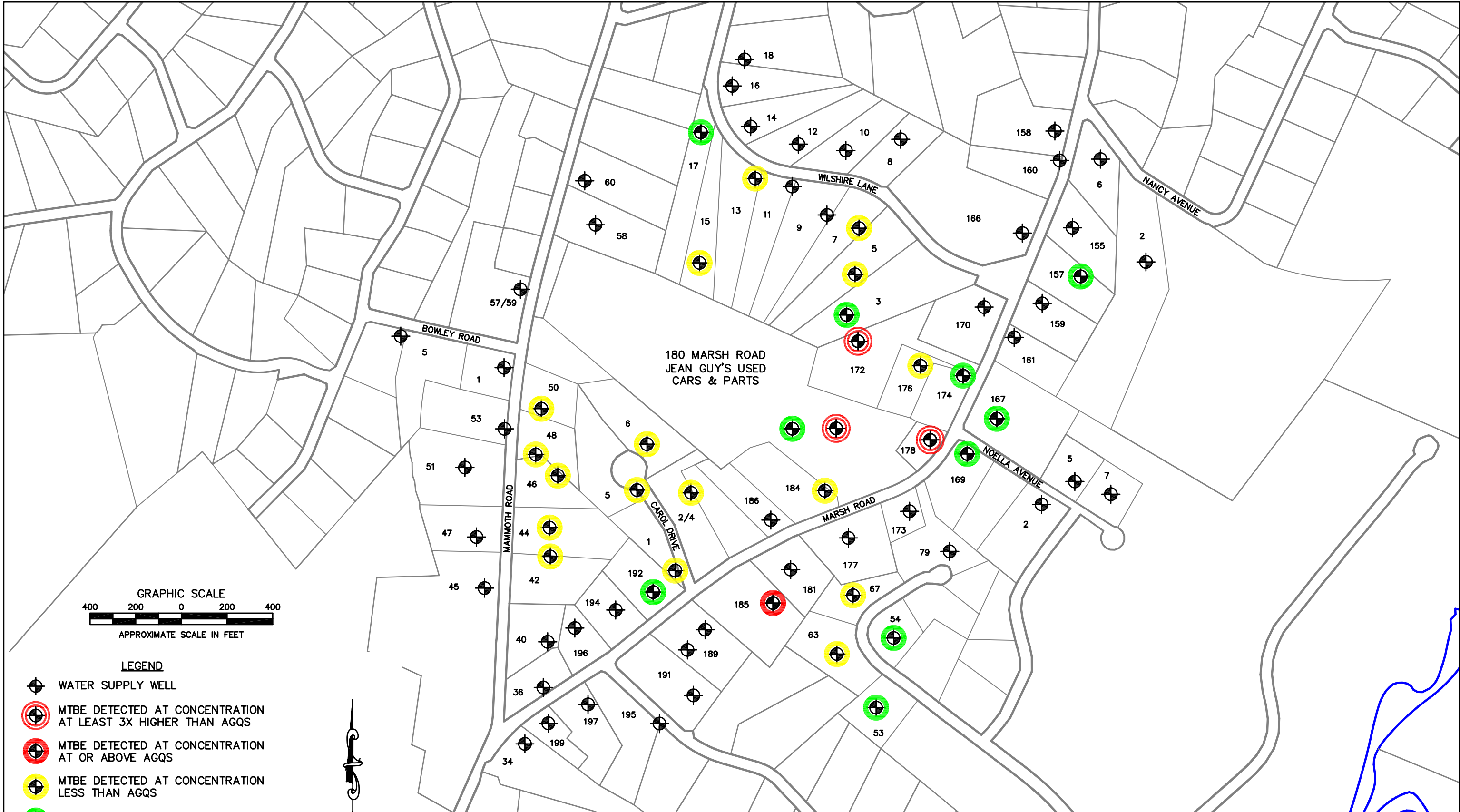
WESTON (Weston Solutions, Inc.). 2002. *Remedial Action Plan, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. August.

WESTON (Weston Solutions, Inc.). 2003. *Soil Excavation Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. February.

WESTON (Weston Solutions, Inc.). 2003. *Quarterly Monitoring Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. June.

WESTON (Weston Solutions, Inc.). 2004. *Tri-Annual Monitoring Report, Jean-Guy's Used Cars and Parts, 180 Marsh Road, Pelham, NHDES Site No. 199907056*. January.

M:\Design\DWG\NHDES\PELHAM\Nov-Dec 2003 Rpt\FIG-3.dwg, Layout1, 1/29/2004 10:49:46 AM, girardeb, 1:1



LEGEND

- WATER SUPPLY WELL
- MTBE DETECTED AT CONCENTRATION AT LEAST 3X HIGHER THAN AGQS
- MTBE DETECTED AT CONCENTRATION AT OR ABOVE AGQS
- MTBE DETECTED AT CONCENTRATION LESS THAN AGQS
- MTBE NOT DETECTED

NOTES:
-SOME LOCATIONS ARE APPROXIMATE OR INFERRED, BASED ON FIELD OBSERVATIONS
-BASEMAP AND WELL LOCATIONS PROVIDED BY NHDES (2001)
-LOCATIONS WITH NO COLOR WERE NOT SAMPLED DURING THE NOV/DEC 2003 ROUND



MTBE CONCENTRATIONS
IN DRINKING WATER
NOV/DEC 2003 SAMPLING ROUND
MARSH ROAD AREA
PELHAM, NEW HAMPSHIRE



DRAWN	BEG	DATE	JAN 2004	DES. ENG.	DATE	W. O. NO.	20111 004 001
CHECKED				APPROVED		DWG. NO.	3